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Allotetraploid emmer wheat. Emmer contains the A and B subgenomes of einkorn and an extinct *Aegilops* species. While this species is still cultivated today in limited quantities, its common wheat cousin accounts for approximately 20% of the calories consumed worldwide. Common wheat results from the addition of a goatgrass (*A. tauschii*) D genome to the A and B genomes. How the addition of a redundant set of genes from a weedy species to the tetraploid genome results in one of the most important staple crops remains a mystery. Photo courtesy of June Russell, GrowNYC. See Santantonio *et al.* in this issue, pp. 1105–1122 and Santantonio *et al.* in G3, pp. 675–684 and pp. 685–695.

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